REMARKS

Claims 1-10 are pending in the current application. A second Declaration of Dr. Richard Roesler is attached herewith.

Rejections under 35 U.S.C.§102

Claims 1 and 3 are rejected under 35 U.S.C.§102(b) as being anticipated by WO 94/19335. The compound disclosed in Example 17 is said to fall within the claimed aspartate structure. Applicants respectfully traverse this rejection as it may pertain to amended Claims 1 and 3.

As amended, X no longer contains further functional groups that are reactive or inert to isocyanate groups at temperatures of up to 100°C. Claims 1 and 3 now exclude the subject matter of WO 94/19335 and the compound shown in Example 17 therein. Applicants respectfully request withdrawal of this basis of rejection.

Rejections under 35 U.S.C. §103

Claims 1-10 stand rejected under 35 U.S.C. §103(a) as unpatentable over Squiller et al. (U.S. Patents 5,489,704 and 5,559,204) or Roesler (U.S. Patent 5,847,195), each in view of Cai (U.S. Patent 6,828,405) and Mormile et al. (U.S. Patent 5,214,086). Applicants respectfully traverse this rejection.

It is asserted in the Office Action that both Cai and Mormile et al. teach the suitability of using ketimines or aldimines in polyisocyanate-based systems, and therefore establish their equivalency. Applicants respectfully disagree with this assertion.

The text cited to in Cai at column 4, lines 42+, states as follows:

> The chemical basis for the imine/polyisocyanate systems of the present invention is a molecular rearrangement to form a reactive species and/or the splitting of the ketimine or aldimine (reversing the reactions by which it is formed) into a ketone or aldehyde, respectively, and an amine by the reaction of the ketimine or aldimine with atmospheric moisture. This reaction is primarily responsible for the curing of the coating.

In fact, as shown in the tables attached to the declaration of Dr. Roesler, an aldimine will undergo both the hydrolysis reaction and the molecular rearrangement, whereas

the ketimine will undergo the hydrolysis reaction only. This has important ramifications for the use of ketimines in a 2-component coating system. Since hydrolysis is occurring to a greater extent with ketimines, more VOCs are released, as compared to use of the aldimine, since the aldimine tautomerizes and reacts with the polyisocyanate due to the molecular rearrangement. As shown in the table, isophorone diamine (IPDA) is evident after only three hours with use of the ketimine, and a strong odor is given off with use of the ketimine in a coating. A skilled artisan who is attempting to minimize VOCs will not be motivated to use ketimines in a coating system, based on the above information. Additionally, the ketimine composition is more viscous, which leads to the need for additional solvent, which also adds to undesirable VOCs.

Cai does not teach the equivalence of ketimines and aldimines in this regard, as an object of the invention in Cai is to produce a coating having low VOC and low viscosity (column 1, line 58). The only imine used in Cai is an aldimine, and no information is provided on VOCs. In fact, based on the reaction mechanism, one skilled in the art would conclude that a ketimine would be unsuitable for use in a 2k system due to the much higher level of VOCs.

Mormile et al. is also cited for teaching the equivalence of aldimines and ketimines, as apparently indicated in the abstract. In fact, however, at column 6, lines 3-23, the mechanism of reaction is described, and it is noted that "hydrolysis results in volatile organic content in the form of aldehyde or ketone....." and that "these moieties, especially the aldehyde, have the capability to react further with functionalities that are present including reaction products of isocyanate and other constituents in the coating composition.... and have the effect of decreasing the volatile organics emitted from the coating composition". Mormile clearly favors aldimines, and uses only aldimines in the examples. Thus, a skilled artisan, upon reading Mormile, would recognize that use of ketimines would be undesirable if one is trying to minimize VOCs.

Applicants respecfully submit that the secondary references do not teach the equivalence of aldimines and ketimines, and that one skilled in the art would conclude that ketimines would be undesirable in coating compositions, as compared

to aldimines if one is trying to reduce VOCs. Therefore, these references do not support the assertion that one would be motivated to substitute ketimines for aldimines to arrive at the aspartate-ketimine compounds of the present invention.

As explained in the declaration of Dr. Roesler, while the aldimine-based compositions do not initially hydrolyze as do the ketimine-based compositions, it has been found that over time hydrolysis occurs, leading to a slow release of VOCs and shrinkage of the coating. This is undesirable, as shrinkage can lead to cracks and other defects in the coating. Thus, the use of ketimines can actually provide a superior coating. This was not appreciated, until the present invention.

Applicants respectfully submit that Claims 1-10 are not obvious in view of the references cited, alone or in combination, and request withdrawal of this basis of rejection.

CONCLUSION

Applicants respectfully submit that Claims 1-10 are in condition for allowance; such action is respectfully requested at an early date.

Respectfully submitted,

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